



**JNCC Report  
No: #####**

**Greening the Economy of the Turks and Caicos  
Interim Report**

**Author(s): Diana Pound, Emma Whittlesea**

**Interim Report  
October 2014  
Draft 05**

**© JNCC, Peterborough 2014**

ISSN 0963 8901

**For further information please contact:**

Joint Nature Conservation Committee  
Monkstone House  
City Road  
Peterborough PE1 1JY  
[www.jncc.defra.gov.uk](http://www.jncc.defra.gov.uk)

**This report should be cited as:**

**Pound, D. and Whittlesea, E. R. (2014) Greening the Economy of the Turks and Caicos: Interim Report. JNCC Report No. ???**

## Contents

1	Introduction.....	1
1.1	Project aims.....	1
1.2	Project purpose.....	1
1.3	Our aim as researchers and facilitators.....	1
2	Methods.....	2
2.1	Phase 1 Document scoping.....	2
2.2	Phase 2 Engagement Methods and reports.....	2
2.2.1	Project Oversight Group.....	2
2.2.2	Online Survey.....	3
2.2.3	Structured Interviews.....	3
2.2.4	Drop in meetings.....	4
2.3	Preparation for Phase 3 Engagement.....	4
2.4	Summary of engagement themes and actions.....	1
2.4.1	Table 1: Focus on the environment.....	1
2.4.2	Table 2 Embedding the environment in strategic decisions.....	4
Annex 1	Documents Checked.....	9
Annex 2	Summary of findings from document review.....	10
Annex 3	Interview Consent Form.....	19
Annex 4	Interview Questions.....	20

# 1 Introduction

On behalf of the Foreign and Commonwealth Office, JNCC's 'Overseas Territories and Crown Dependencies Environmental Mainstreaming Programme' is supporting projects to help the UK Overseas Territories (UK OTs) to:

- understand the economic value of, and dependences on, their natural environment
- understand the threat and risks
- identify solutions to enable the environment to be mainstreamed and properly integrated into strategic decisions

Pilot projects have been carried out on three other OTs (Falklands, Anquilla, and the BVI) and this project is for the Turks and Caicos Islands (TCI).

Initially called Environmental Mainstreaming the initiative is now called the Green Economy initiative.

The United Nations Environment Programme (UNEP) define a 'green economy' as 'improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities'. For a particular community it is a shared endeavour between people, stakeholders and public bodies to improve wealth and employment whilst investing in nature. The investment in nature includes reducing carbon emissions and pollution, enhancing energy and resource efficiency, and preventing the loss of biodiversity and ecosystem benefits. As natural capital builds there is an improvement and enhancement for people and places. This can only happen where there is a joined up strategy, public and private investment and policy/regulation reforms.

## 1.1 Project aims

JNCC's aim for this project is for it to identify the short, medium and long term actions necessary to establish a common understanding of what is needed to mainstream the environment into the planning processes and strategic decisions of the Turks and Caicos Islands.

## 1.2 Project purpose

The core purpose of this project is to engage a diverse group of stakeholders comprising Government, NGO, Business and TCI Communities to:

- develop understanding of the role and value of healthy ecosystems for the long term social, environmental and economic well-being of the territory
- understand the challenges to ecosystem health and consequent socio-economic and human well being
- identify locally appropriate policy, measures, and actions to manage them
- mainstream the environment and establish a Green Economy

## 1.3 Our aim as researchers and facilitators

From our perspective, a key aim for this work is that it makes a real difference to the TCI. Crucially we want to leave a legacy of fresh momentum and a 'can do' attitude towards achieving a green economy that fosters social and economic wellbeing, whilst valuing and enhancing the health of the natural environment.

## **2 Methods**

### **2.1 Phase 1 Document scoping**

This initial rapid review was to scope the type and nature of information available and collate it into a format that allowed a provisional assessment of knowledge, the legal framework and the capacity of government and wider society.

To undertake the document scoping, the TCI Liaison Officer for the project (hereafter LO) provided 42 documents (see annex for the list).

Initially the method chosen was to create three tables one for each of the different themes:

- knowledge,
- capacity
- instruments

The y axis of the tables listed different elements of the environment or its use

The documents were reviewed to identify and extract relevant text to populate the tables. However, this resulted in tables which ran to over 100 pages making it difficult to comprehend and not very usable. There was also considerable duplication and overlap between the three themes. To address these challenges we have produced a short summary table (ref annex).

### **2.2 Phase 2 Engagement Methods and reports**

#### **2.2.1 Project Oversight Group (POG)**

A Project Oversight Group was convened and invited to a workshop to help:

- scope the context for the project
- explore what is already working well to achieve a green economy
- suggest what more needs to happen
- identify likely priorities for the main stakeholder workshop
- identifying participants for the main stakeholder workshop

Eight people attended the workshop from business and government and across the following spectrum of interests:

- Tourism
- Recreation
- Finance
- Development
- Environment

At the POG workshop the essence of everything participants said was noted in writing in front of them for transparency and so they could check for accuracy. This record has been typed up and sorted so that similar points are put together and the resulting output is easier to comprehend. Emergent processing was used to categorise the results. This involves coding similar points together until clear themes and points emerge. It results in more nuanced outputs than if categories were predetermined and points allocated to them.

For the outputs please see the report: Project Oversight Group Workshop Outputs.

### 2.2.2 Online Survey

An online survey was created and run on Survey Monkey. This broadened engagement to stakeholders and the public and enabled participants who couldn't take part in face-to-face activities, to contribute their thinking.

Initially we had expected to ask open questions and target the survey towards 30 people with knowledge and experience of environmental work in the TCI, but who don't reside there. Examples would be research projects and NGO initiatives.

However, the TCI Project Liaison Officer felt a better use of the survey would be to make it open to TCI citizens so that it not only captured perspectives but also raised awareness. Anticipating a higher response rate, the survey design was changed from open questions to multiple choice.

The questionnaire was initially open for three weeks from 21 September to midnight on the 12 October 2014. Towards the end of this period it was evident that some people on Grand Turk had not been aware of the survey, but wanted to provide their view, and so the survey period was extended and closed on the 22 October 2015.

The survey resulted in 129 responses. The results can be seen in the: Questionnaire Responses Report.

### 2.2.3 Structured Interviews

A structured interview was designed and conducted to promote in-depth inquiry into what is working well and what more needs to happen in relation to:

- managing the environment
- embedding the environment into strategic thinking and decisions

To find interviewees, the LO identified a spectrum of 40 people which was reviewed to ensure it covered a range and breadth of interest. Invitations went out to all 40 highlighting there were 14 slots and these would be allocated on a first come first served basis. In less than 24 hours all slots were taken.

We interviewed nine people on Provo and five on Grand Turk and the profile of the interviewees is summarised in Table 1.

Interviewees had to sign a consent form (ref annex) and demographic information was collected at the beginning of the interview. The interviews then took about an hour (for structure see annex). Following the interviews, some participants chose to say more off the record and this information has also informed some of our findings.

Table 1 Profile of the Interviewees

Gender:	3 females and 11 males
Occupations and interests:	tourism, water sports, planning, politics, faith, community, health, environment, fisheries
Nationalities:	7 TCI Islander/Belonger, 1 British, 4 US/Canadian and 2 others
Ages:	30 - 39     II 40 - 49     IIIII

	50 - 59	III
	60 - 69	I
	70 - 79	II
Length of time on the TCI:	Up to 5	I
	5 - 9	II
	10- 19	III
	20 - 29	
	30 - 39	II
	40 - 49	III
	50 - 59	
	60 - 69	
	70 - 79	I

We have reviewed and analysed the outputs of these interviews but not yet transposed them into a format that protects the person's anonymity and can be shared.

In addition to the formal interviews we had numerous informal but informed and serious conversations. This happened when some people found out what we were doing, and wanted to tell us their views and for those to be taken into account. Where possible, we took notes and/or directed them to the online questionnaire. People we spoke to included:

- service providers such as hotel, accommodation, taxi, restaurant, airport and dive centre staff
- residents or visitors including: retired, professionals, shop keepers, medical personnel, holiday makers, and people from other projects

Whilst not formally interviewing, we never the less found these conversations confirmed other findings, or added nuance or detail to them, and so contributed to our understanding.

#### **2.2.4 Drop in meetings**

To increase the opportunity for participation further, we held two 'drop-in' meetings: one on Provo and one on Grand Turk. These were promoted via social media, a press release, a TV interview, and distribution of a leaflet whilst we were in the TCI. We estimate that about 15 people attended the drop in on Provo or Grand Turk. We are unable to confirm exact numbers because some people chose not to fill in an attendance form to protect their anonymity. This total is lower than hoped, but we think contributory factors to this are that it was an unfamiliar way of engaging, more advance promotion was needed, and on Provo the location of the venue was not easily accessible other than by car.

For outputs please see the document: Drop in Meeting Outputs

### **2.3 Preparation for Phase 3 Engagement**

In preparing for the main workshop in November, all the outputs from the various phases of the consultation and engagement exercises to date, have been reviewed and summarised in Tables 2 and 3 in section 2.4.

From these tables the following key themes have been identified for discussion at the November workshop.

#### **Topics for looking after the environment and its resources:**

- Coastal and marine ecosystem health (creek, mangrove, sea grass and reef)

- Sustainable Fisheries
- Land and wetlands habitat management and conservation
- Water management (fresh, brackish and marine)
- Waste management
- Sustainable energy

**Embedding the environment in strategic decisions:**

- Funds, capacity, knowledge and skills to manage the environment better (for NGO and Government)
- TCI strategic and island specific sustainable development and spatial planning
- Strengthening the development approval process
- Environmental plan and audit
- Greening Tourism and influencing the current Tourism Strategy
- Enhancing environmental understanding and education at all levels
- Robust environmental and planning laws, implementation, enforcement in an equitable and fair way

**Maintaining momentum:**

- Stakeholder participation and community involvement to influence key decisions
- Embedding and establishing a green economy/sustainability ethos in government and across sectors
- Staying engaged and drawing in others to maintain momentum
- New environmental professional and independent NGO
- New GE working group

In preparation for the workshop the POG expressed concern that as topics are prioritised some will be government responsibilities and will not be in the gift of people at the workshop to implement. It was therefore agreed that:

- if a priority is a core government responsibility, the action planning would be about how to encourage government to make progress on it
- if a priority is within the gift of those present, they can work out actions for implementation

We therefore envisage that the priorities selected for further discussion and action planning will fall somewhere on the following matrix below:

		Responsibility and role	
		Government	Stakeholders
Priorities for looking after the environment and its resources  Priorities for embedding green economy thinking and values	Work out action to encourage progress	Work out actions and how best to implement them	

## 2.4 Summary of engagement themes and actions

Explanation of the symbols and terms used in Table 2 and Table 3

Symbol	Meaning	Details
POG	Project Oversight Group	8 senior individuals from Government and business
SI	Structured Interviews	14 professionals or community leaders from a variety of sectors
Q	Online Questionnaire	129 responders from a broad cross section of ages, sectors and nationalities. (But with sufficient interest in the environment to take part).
D-in	Drop in meetings	Approx 15 people primarily local community on GT and professional people on Provo
Doc	Document Review (Item occurs in summary)	42 key environment or environment related documents reviewed
DM	Informal but serious conversations with DM staff whilst on island	Approx 17 locals, service providers and professionals
■	Topic or some key part of it raised via this type of engagement	
	Emerged as a priority for this form of engagement	
	Overall priority	

### 2.4.1 Table 2: Focus on the environment

			POG	SI	Q	D-in	Doc	DM
	<b>Managing the natural environment</b>							
1.	<ul style="list-style-type: none"> <li>Marine and marine NP ecosystem management</li> </ul>	<ul style="list-style-type: none"> <li>Creek, mangrove, sea grass and reef - whole ecosystem health</li> <li>Avoiding direct damage to reef (eg from dredging, collision)</li> <li>Avoiding indirect damage (eg from siltation, pollution )</li> <li>Removal of alien species</li> <li>Water quality monitoring and managing at source( see water quality section)</li> <li>Sustainable fishery ( see fishery section)</li> <li>Sustainable recreation (managing anchoring, standing on or touching the reef, not feeding wild species and altering behaviour and food chain)</li> <li>Full EIA mandatory so no direct, indirect or cumulative effects</li> <li>Proper engagement and consultation at all key stages</li> <li>NP boundaries stay fixed not moved for convenience</li> <li>Acquire Marine Biosphere Status - good for environment and tourism marketing</li> <li>Citizen science programme to help with monitoring</li> </ul>	■	■	■	■	■	■
2.	<ul style="list-style-type: none"> <li>Sustainable Fisheries management</li> </ul>	<ul style="list-style-type: none"> <li>Sustainable management</li> <li>Fish only sustainable yield of each target species ( conch and lobster stocks are in serious decline)</li> <li>Measures to enable conch stock to recover for example set up and/or enforce no take zones,</li> </ul>		■	■	■	■	■

			POG	SI	Q	D-in	Doc	DM
		<ul style="list-style-type: none"> <li>– closed seasons</li> <li>– Unsustainable practices stopped such as not leaving conch shells with tails left in to rot and pollute area</li> <li>– No bleaching or other illegal practice - such practices actively policed and penalised</li> <li>– Effective and equitable policing and enforcing of laws</li> <li>– More officers and training of all so they are fully aware of their responsibilities</li> <li>– Adopt anti-corruption measures</li> <li>– Set up anonymous reporting system so that anyone can report breaches - by either fishers or regulators</li> <li>– Have additional UK support for policing and dealing with poacher boats</li> <li>– Suggestion of need for independent marine fishery policing agency</li> </ul>						
3.	<ul style="list-style-type: none"> <li>• Land and wetland habitats</li> </ul>	<ul style="list-style-type: none"> <li>– Conservation and increased valuing of biodiversity on land (eg areas of primary tree/scrub habitat)</li> <li>– Conservation of wetlands and salinas</li> <li>– Public awareness and action about invasive aliens</li> </ul>		■		■	■	■
4.	<ul style="list-style-type: none"> <li>• Soil conservation and maintenance</li> </ul>	<ul style="list-style-type: none"> <li>– Issue of loss of top soil through development</li> <li>– Avoid new build removing all vegetation and soil around the property and replacing with unsustainable planting</li> </ul>		■			■	
5.	<ul style="list-style-type: none"> <li>• Aquaculture</li> </ul>	<ul style="list-style-type: none"> <li>– Need to develop to diversify the economy</li> </ul>		■				■
6.	<ul style="list-style-type: none"> <li>• Agriculture and farming</li> </ul>	<ul style="list-style-type: none"> <li>– Need to develop to diversify the economy</li> <li>– Learn from farmers on N Caicos</li> <li>– Some food security - and eat what we grow</li> <li>– Need an Agricultural Plan</li> </ul>		■				■
7.	<ul style="list-style-type: none"> <li>• Air quality monitoring , emissions reductions</li> </ul>	<ul style="list-style-type: none"> <li>– Currently have clean air but need to ensure it is kept that way</li> <li>– Address charcoal burning</li> </ul>		■	■			
<b>Waste, energy and water</b>								
8.	<ul style="list-style-type: none"> <li>• Waste management plan/task force</li> </ul>	<ul style="list-style-type: none"> <li>– Waste collection for all homes and business</li> <li>– Strategy of full spectrum recycling, waste to energy, waste for compost</li> <li>– Waste and anti-litter education</li> <li>– Street and land clean up</li> <li>– Clean beaches</li> <li>– Disposal in lined tips to avoid toxic leachate polluting water and sea</li> <li>– Animal and wind proof bins</li> <li>– Support for less affluent to clean up and have waste collected</li> <li>– Fines for not cleaning up</li> </ul>	■	■	■	■	■	■
9.	<ul style="list-style-type: none"> <li>• Sustainable Energy - Transition to sustainable</li> </ul>	<ul style="list-style-type: none"> <li>– Remove TCI from the current energy monopoly</li> <li>– Policies and incentives to decarbonise</li> </ul>	■	■	■	■		■

			POG	SI	Q	D-in	Doc	DM
	sources	<ul style="list-style-type: none"> <li>- Shift to renewables</li> </ul>						
10.	<ul style="list-style-type: none"> <li>• Water system ( fresh, brackish and marine) quality, quantity, management</li> </ul>	<ul style="list-style-type: none"> <li>- Take a holistic catchment/water shed approach</li> <li>- Address sources of pollution to fresh water, salinas and sea (waste leachate from unlined waste tips, cesspools and graves, horticulture/landscaping, road and airport run off, effluent)</li> <li>- Compulsory discharge consents, higher standards for discharge in or near a marine NP</li> <li>- Rainwater harvesting and conservation measures</li> <li>- Manage water quality of stagnant salinas (with expert advice on how to do this and avoid negative impact on marine habitats)</li> <li>- Water quality monitoring</li> </ul>		■	■	■	■	■
11.	<ul style="list-style-type: none"> <li>• Shoreline/Beach/coastal flooding plan</li> </ul>	<ul style="list-style-type: none"> <li>- Tackle sediment loss and beach erosion</li> <li>- Tackle loss of natural defences</li> </ul>		■		■	■	■

**2.4.2 Table 3: Embedding the environment in strategic decisions**

			POG	SSI	Q	D-in	Doc	DM
<b>Enhanced capacity and ability to manage the environment</b>								
12.	<ul style="list-style-type: none"> <li>Sustainable funding and resources for environmental work</li> </ul>	<ul style="list-style-type: none"> <li>Sustainable funding and resources for environmental work (Government and NGO) and conservation and education (eg reinstate Conservation Fund)</li> </ul>	■	■				■
13.	<ul style="list-style-type: none"> <li>DEMA better resourced</li> </ul>	<ul style="list-style-type: none"> <li>Better resourced, better trained, better morale, stronger team, disaster preparedness, effective, efficient, enough staff so people work to their skill/knowledge area.</li> <li>Remove unnecessary bureaucracy</li> <li>Resources for equipment, office repair, research/monitoring and education</li> </ul>		■	■	■		■
14.	<ul style="list-style-type: none"> <li>Data and data hub:</li> </ul>	<ul style="list-style-type: none"> <li>Collection, and sharing of data and use to track environmental change</li> <li>Collection of environmental monitoring data and reporting</li> </ul>	■	■	■			
15.	<ul style="list-style-type: none"> <li>Good science and research</li> </ul>	<ul style="list-style-type: none"> <li>Science done and used to inform management , development and strategic decisions</li> </ul>		■				
<b>Strategic Vision and Plan</b>								
16.	<ul style="list-style-type: none"> <li>Develop a vision</li> </ul>	<ul style="list-style-type: none"> <li>Develop and embed a sustainable vision and re-define success</li> </ul>	■	■	■	■		■
17.	<ul style="list-style-type: none"> <li>Country wide TCI National Strategic and Sustainability Plan</li> </ul>	<ul style="list-style-type: none"> <li>Sets out a clear long term vision</li> <li>Ensure this is grounded in sustainability principles</li> <li>Guides all government activities and sustainability in private sector</li> <li>Is resistant to changes in government, political whim or pressure by particular developers</li> <li>Informed and tested by a Strategic Environmental Assessment of strategy</li> <li>Developed through a proper process with consultation and engagement at all levels and stages</li> <li>Sets out a clear overarching framework for island specific plans and individual initiatives and developments</li> <li>Identifies political and public spending priorities</li> <li>Based on environmental limits and carrying capacity</li> </ul>	■	■	■	■	■	
18.	<ul style="list-style-type: none"> <li>Environmental plan</li> </ul>	<ul style="list-style-type: none"> <li>Audit what we have</li> <li>Shows baseline of what we had, and what we've got.</li> <li>Describes what we want and where we're going</li> <li>Identifies environmental limits and carrying capacity</li> <li>Identifies environmental targets, steps to achieve them, and best organisation to lead eg DEMA or NGO</li> <li>Informs all other strategies and plans</li> <li>Assists with drawing in funds for delivery</li> </ul>	■	■				
19.	<ul style="list-style-type: none"> <li>Climate and Sea Level Rise adaptation strategy</li> </ul>	<ul style="list-style-type: none"> <li>Need to have a long term climate and sea level rise adaptation strategy</li> <li><i>[DDME is incorporating this into their overall disaster management strategy and action plan]</i></li> </ul>		■			■	■

			POG	SSI	Q	D-in	Doc	DM
<b>Spatial and Development Planning</b>								
20.	<ul style="list-style-type: none"> <li>Island specific vision and plans</li> </ul>	<ul style="list-style-type: none"> <li>Plan for each island tailored to each island's character whilst fitting with the 'beautiful by nature' vision</li> <li>Identifies appropriate capacity, assets and opportunities,</li> <li>Spatial planning,</li> <li>Sets clear guidelines and constraints for development and related infrastructure</li> <li>Clustered development (housing, education, retail, business)</li> <li>Provo tourism development to be high end, low density, low rise</li> <li>Tourism development elsewhere to be appropriate for that island</li> <li>Green Building Design</li> <li>Water, energy and waste infrastructure planned and managed,</li> <li>Green infrastructure (ie ecological network structure to be planned in along with other forms of infrastructure)</li> <li>Native species left or native species/climate appropriate planting - don't clear all the plot, just the buildings foot print</li> <li>Areas designated for nature on land</li> </ul>	■	■	■			
21.	<ul style="list-style-type: none"> <li>Development Approval Process</li> </ul>	<ul style="list-style-type: none"> <li>Development in keeping with vision for TCI and each island</li> <li>Rigorous, robust and transparent planning and mandatory EIA process and enforcement</li> <li>Clear and transparent criteria for approval or rejection, implement standardised process</li> <li>Fully implemented and/or updated EIA procedure so it is rigorous, independent, high standard, and mandatory</li> <li>Decisions informed and cleared by relevant technical environmental experts</li> <li>Short, medium and long term mitigation and compensation agreed, funded, implemented and monitored for implementation</li> <li>Monitoring and action against breach</li> <li>NP boundaries not altered for development reasons</li> </ul>	■	■	■	■	■	■
22.	<ul style="list-style-type: none"> <li>Address problem of unfinished buildings which are an eyesore</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>		■				■
23.	<ul style="list-style-type: none"> <li>Restrictions on crown land development</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>	■					
<b>Modernise and enforce laws</b>								
24.	<ul style="list-style-type: none"> <li>Environmental laws and regulations</li> </ul>	<ul style="list-style-type: none"> <li>Modernise and update laws.</li> <li>Ratify environmental laws in progress</li> <li>Enforce laws</li> <li>Implement in an equitable way</li> <li>Resources to police and enforce</li> </ul>	■	■	■	■		

			POG	SSI	Q	D-in	Doc	DM
25.	<ul style="list-style-type: none"> <li>• Anti-corruption measures</li> </ul>	<ul style="list-style-type: none"> <li>– Stop bribery and corruption by adopting anti-corruption measures</li> </ul>		■		■		■
<b>Building capacity and skills to influence decisions</b>								
26.	<ul style="list-style-type: none"> <li>• Enhance understanding of politicians, leaders, senior decision makers</li> </ul>	<ul style="list-style-type: none"> <li>– Enhance politicians and senior decision makers understanding of environment, how it works, interdependences, risks and opportunities, – including broadening basis for decisions well beyond just revenue.</li> </ul>	■	■		■		■
27.	<ul style="list-style-type: none"> <li>• Stakeholder and public Participation</li> </ul>	<ul style="list-style-type: none"> <li>– Effective and genuine public participation that influences key decisions ( including influence of other islands)</li> </ul>	■	■	■	■		■
28.	<ul style="list-style-type: none"> <li>• Environmental education and awareness raising</li> </ul>	<ul style="list-style-type: none"> <li>– Leading edge environmental education and awareness raising:</li> <li>– All age, all sectors and all parts of society ( including politicians, believers, tourism industry, other business, ethnic groups)</li> <li>– Includes:</li> <li>– Understanding of human/environment interdependencies eg need to protect and look after the environment for us humans not just its own sake eg we need fish, clean water, pristine environment for tourists, human health. Also: <ul style="list-style-type: none"> <li>– Whole system understanding</li> <li>– Long term effects</li> <li>– Not finite resource but limits, tipping points and essential to our own life support</li> </ul> </li> <li>– Use latest ideas on education psychology and learning to engage hearts and minds</li> <li>– Use latest media and methods</li> <li>– Regular media coverage of environmental stories</li> <li>– Train and enhance the skills of school teachers</li> </ul>	■	■	■	■		■
29.	<ul style="list-style-type: none"> <li>• Active citizen reporting of environmental concerns</li> </ul>	<ul style="list-style-type: none"> <li>– Scheme to encourage reporting of environmental concerns or threats to NGO and Government</li> </ul>		■				
<b>Greening tourism and recreation</b>								
30.	<ul style="list-style-type: none"> <li>• Become an international exemplar of green tourism</li> </ul>	<ul style="list-style-type: none"> <li>– All tourism activity and decisions consistent with the 'beautiful by nature brand'</li> <li>– Embed an understanding in the tourism industry about dependence on the environment including <ul style="list-style-type: none"> <li>– Eco friendly cleaning products</li> <li>– Renewable energy</li> <li>– Use landscape planting that doesn't require water and nutrient and pesticide applications that pollute the water</li> </ul> </li> <li>– All hotels and other operators to have environmental and greening initiatives and scoring for comparison</li> <li>– Accreditation for those that achieve appropriate standard</li> <li>– Auditing/monitoring to ensure ongoing meeting of standards</li> </ul>	■	■		■		■

			POG	SSI	Q	D-in	Doc	DM
		<ul style="list-style-type: none"> <li>- No development that is contrary to beautiful by nature – so no captive wild animals (dolphins) for tourism attraction</li> <li>- Address and ensure social inclusion in particular equitable access to beaches – local people feel excluded and unwelcome</li> </ul>						
31.	<ul style="list-style-type: none"> <li>• New tourism plan based on sustainability</li> </ul>	<ul style="list-style-type: none"> <li>- Ensuring the tourism plan (in progress) is based on sustainability and green economy information</li> </ul>	■					
32.	<ul style="list-style-type: none"> <li>• Responsible recreation</li> </ul>	<ul style="list-style-type: none"> <li>- Diving and other marine recreation carried out in a responsible way</li> <li>- Requires education of operators, public and tourists</li> <li>- Avoid damage such as Coral Garden</li> <li>- Avoid anchor damage to reefs and other habitats</li> <li>- Don't feed fish and alter their behaviour and food chain</li> </ul>		■	■	■		■
<b>Human and animal health and wellbeing</b>								
33.	<ul style="list-style-type: none"> <li>• Disease</li> </ul>	<ul style="list-style-type: none"> <li>- Risk assess and manage vector and waterborne diseases</li> </ul>		■		■	■	■
34.	<ul style="list-style-type: none"> <li>• Illegal subsistence communities</li> </ul>	<ul style="list-style-type: none"> <li>- Address the problem of illegal immigration, charcoal burning, shanti towns including unsanitary conditions, health and environmental problems</li> </ul>		■				■
35.	<ul style="list-style-type: none"> <li>• Poor/slum areas</li> </ul>	<ul style="list-style-type: none"> <li>- Support/help clean-up environment of 'distressed communities' and provide proper sanitation and water</li> </ul>		■				■
36.	<ul style="list-style-type: none"> <li>• Need for social cohesion</li> </ul>	<ul style="list-style-type: none"> <li>- Need a stronger sense of community</li> <li>- Need social cohesion so can act together for the environment</li> </ul>		■		■		■
37.	<ul style="list-style-type: none"> <li>• Animal welfare</li> </ul>	<ul style="list-style-type: none"> <li>- Animal welfare on GT – drastically reduce numbers of feral donkeys and dogs on GT ( also links to litter issues)</li> </ul>		■	■	■		■
<b>Incentivise green thinking at all levels/sectors</b>								
38.	<ul style="list-style-type: none"> <li>• Green Accreditation</li> </ul>	<ul style="list-style-type: none"> <li>- Green accreditation for all sectors</li> </ul>		■				
39.	<ul style="list-style-type: none"> <li>• Tariff breaks on eco products</li> </ul>	<ul style="list-style-type: none"> <li>- Import tariff concession on eco-friendly products to incentivise choosing them</li> </ul>		■				
<b>Maintaining momentum</b>								
40.	<ul style="list-style-type: none"> <li>• Plan to maintain momentum</li> </ul>	<ul style="list-style-type: none"> <li>- Plan to ensure momentum is maintained - Fostering a can do make a difference attitude ( overcoming inertia and cynicism). Bringing people together to harness resources</li> </ul>	■	■				■
41.	<ul style="list-style-type: none"> <li>• New TCI Environment NGO</li> </ul>	<ul style="list-style-type: none"> <li>- New independent TCI environmental NGO – professional staff, ethical, well-funded, makes a difference, anti-corruption policy so can draw down funds and function independently</li> <li>- Could take on roles of secretariat for NP advisory groups</li> <li>- Could take on secretariat for re-establishment of the Environmental Charter Working Group</li> <li>- Take on role far reaching and engaging environmental education</li> <li>- Could manage NP</li> <li>- Could lead on education programme for all levels</li> </ul>		■				■



## Annex 1 Documents Checked

Documents reviewed	Legislation
<ol style="list-style-type: none"> <li>1. 9x6_FieldGuide.pdf</li> <li>2. 2013 Trip Report Wagener.pdf</li> <li>3. Bight Community Report.pdf</li> <li>4. Caribbean Pine PhD Thesis.pdf</li> <li>5. CaMPAMCapacityAssessment2011.pdf</li> <li>6. Claydon et al 2008 Nassau grouper recommendations.pdf</li> <li>7. Columbus Landfall MGMT Plan.pdf</li> <li>8. Economic Valuation of TCI Envir Nautilus Report - Final .pdf</li> <li>9. EIA Leeward Beach Creation (June 2005)a.pdf</li> <li>10. EIA Tug Dalmazia Barge SP1 Final.pdf</li> <li>11. Emerald_6Mo Post Construction Groyne Rpt_FINAL.PDF</li> <li>12. Final Draft.pdf (National Standards and Guidelines for Conservation)</li> <li>13. Final report for IIF.pdf</li> <li>14. FINAL Summary Document CCCRA - Turks and Caicos Islands - Revised Nov. 2012.pdf</li> <li>15. Five Cays Community Report Final English (2).pdf</li> <li>16. Grand Turk CLNP Beach Profile Analysis 2008-2012.Updated.pdf</li> <li>17. Grand Turk Community Report.pdf</li> <li>18. Grand Turk Salina Report.pdf</li> <li>19. Green Paper Final TCI.pdf</li> <li>20. Oasis Groyne Repair</li> <li>21. Oasis MMP</li> <li>22. Operation Raleigh</li> <li>23. Princess Alexandra Land and Sea National Park_man_plan.docx</li> <li>24. PALAS Mgmt Plan</li> <li>25. Reefs of TCI</li> <li>26. Scoping and Preliminary EIA NCPD (ToR only) 2013</li> <li>27. TCI Belonger Business Opportunities</li> <li>28. TCI Climate Change Vulnerability and Capacity Assessment (FINAL).pdf</li> <li>29. TCI DRAFT Agricultural Policy Framework Proposal for Internal circulation final for circulation internally.pdf</li> <li>30. TCI National Meeting Report.pdf</li> <li>31. Temperature data 2011-2012.graphs.pdf</li> <li>32. Temperature.Light data 2012-2013.pdf</li> <li>33. Thompson Cove_EIA Final.pdf</li> <li>34. Thompsons Cove 6 Month Post Construction Rpt FINAL 2013-03-08.pdf</li> <li>35. Thompson's Cove 18 Month Post Construction Survey 02232014.pdf</li> <li>36. Thompson's Cover Immediate and 1 Year Post Construction Survey09032013.pdf</li> <li>37. Wave Energy Reduction Woods.pdf</li> <li>38. Final ground truthing report</li> <li>39. Final habitat mapping report</li> <li>40. Final National standardised vegetation</li> <li>41. DECR Next Steps and Mapping</li> <li>42. TCI Mapping Binder</li> </ol>	<ol style="list-style-type: none"> <li>1. Wildlife Bill 2009</li> <li>2. Public &amp; Environmental Health Ordinance</li> <li>3. Minerals (Exploration and Exploitation) Ordinance</li> <li>4. National Trust Ordinance</li> <li>5. Wild Birds Protection Ordinance</li> <li>6. Fisheries Protection Ordinance</li> <li>7. Endangered Species Bill 2007</li> <li>8. TC Salina-Ordinance</li> <li>9. Water and Sewerage Ordinance</li> <li>10. Physical Planning Ordinance</li> <li>11. National Park Ordinance</li> <li>12. Plant Protection Ordinance</li> <li>13. Coast Protection Ordinance</li> <li>14. 2011 - Marine Pollution _Discharge Regulations</li> <li>15. Marine Pollution Ordinance 2010</li> <li>16. TCI Development Manual (2007)</li> </ol>

## Annex 2 Summary of findings from document review

**Please note well:** this summary comprises quotes from TCI documents and not our own opinion or knowledge. Inevitably some situations have changed since the quoted documents were written. Where known, updates have been provided by the LO for this project and are indicated in [brackets].

	Current situation	Suggestions for change
Life Support systems		
<b>Clean Air</b>	<p><b>Lack of monitoring</b></p> <ul style="list-style-type: none"> <li>Air quality and emissions are poorly monitored [not currently monitored]</li> </ul> <p><b>Charcoal burning</b></p> <ul style="list-style-type: none"> <li>There are public concerns regarding illegal charcoal manufacturing and burning of waste to obtain scrap metal.</li> </ul>	<p><b>Monitoring</b></p> <ul style="list-style-type: none"> <li>Air quality monitoring needs to be established.</li> </ul>
<b>Water</b>	<p><b>Water stress</b></p> <ul style="list-style-type: none"> <li>The Turks and Caicos Islands are water stressed. Water resources are limited to rainfall, salt water and limited ground water aquifers. Given rainfall patterns, most islands suffer occasional droughts and water shortages. Due to limited sources of natural freshwater, and minimal annual rainfall. The islands therefore rely on the production of desalinated water (which is energy intensive).</li> <li>Scarce freshwater resources such as island wells, surface water and groundwater have extensive cultural, historical and ecological significance.</li> <li>Reduced run-off impacts catchment ecosystems and leads to deteriorating water quality and loss of native vegetation as a result of rising salinity.</li> </ul> <p><b>Development</b></p> <ul style="list-style-type: none"> <li>There are numerous development issues and impacts that can and do affect water quality.</li> </ul> <p><b>Water Quality</b></p> <ul style="list-style-type: none"> <li>Pollution can be carried directly to water resources via point and non-point sources including runoff of wastes, point spillages, direct discharge, seepage through bedrock and transport through surface or sub-surface waters.</li> <li>No specific water quality standards exist that can be used as limiting levels that are to be maintained once the development proceeds. [<i>Standards have been established but have not been effectively implemented</i>]</li> </ul>	<p><b>Water conservation, harvesting and storage</b></p> <ul style="list-style-type: none"> <li>Drought management will become a progressively large challenge.</li> <li>Increase water conservation measures across the TCI.</li> <li>Encourage rainwater harvesting (i.e. from rooftops) and tanks to store rain water as an alternative source of drinking water so that communities aren't solely reliant on groundwater/desalinated water</li> <li>Create water collection and storage facilities on farms for use in irrigation.</li> </ul> <p><b>Watershed management</b></p> <ul style="list-style-type: none"> <li>Local watershed management is needed.</li> </ul> <p><b>Water quality/avoid pollution</b></p> <ul style="list-style-type: none"> <li>Establish regulations for use of pesticides, fertilizers and other maintenance chemicals,</li> <li>Establish better waste disposal in particular toxic wastes including used motor oil, batteries, petrochemicals, heavy metals and other hazardous materials.</li> </ul>
<b>Bio-diversity</b>	<p><b>Protected areas</b></p> <ul style="list-style-type: none"> <li>The TCI has one of the most extensive protected area systems in the world relative to its size, incorporating marine and terrestrial environments as well as its key heritage sites: 33 protected areas: 11 National Parks; 11 Nature reserves; 4 Sanctuaries and 7 Areas of Historical Interest</li> <li>It is home to some of the earth's 'rarest and most pristine morsels' of natural history.</li> </ul> <p><b>Resources to manage biodiversity and enforce</b></p> <ul style="list-style-type: none"> <li>Insufficient resources, staffing and technical capacity within DEMA.</li> <li>There is need for more activity to meet the level of enforcement responsibilities.</li> </ul>	<p><b>Protected areas on land</b></p> <ul style="list-style-type: none"> <li>Establish legislation for the protection of land-based biodiversity or endangered species</li> </ul> <p><b>Increase awareness of terrestrial biodiversity</b></p> <ul style="list-style-type: none"> <li>Increase awareness of biodiversity value on land.</li> </ul> <p><b>Ratify and enact legislation</b> [<i>currently in draft and appear stalled in Chambers</i>]</p> <ul style="list-style-type: none"> <li>Endangered Species Bill and Wildlife and Biodiversity</li> </ul>

	Current situation	Suggestions for change
	<p><b>Terrestrial Biodiversity ( for marine see 'Healthy Seas')</b></p> <ul style="list-style-type: none"> <li>The Turks and Caicos Islands contain a number of diverse and mature vegetative plant communities including rare, threatened, endangered, endemic, culturally significant and venerable species.</li> </ul> <p><b>Threats to biodiversity</b></p> <ul style="list-style-type: none"> <li>[Terrestrial biodiversity challenges] identified include: , Loss of freshwater wetlands, clear-cutting of land, loss of significant species including rare, threatened, endangered and endemic species. Bank stabilisation, Erosion and Runoff and Invasion of Exotic nuisance species. Threat to indigenous species include alien scale species impacting Caicos Pine.</li> <li>Terrestrial and marine ecosystems and water resources are already facing serious pressures from increasing development and poor land use practices and climate change is exacerbating these impacts.</li> <li>Specific development issues are: beach and dune destruction; sand mining; colonisation of invasive exotic species e.g. Australian Pine</li> </ul>	<p>Protection Bill to come into force to enhance resilience of flora and fauna.</p> <ul style="list-style-type: none"> <li>Ratify biodiversity legislation</li> </ul> <p><b>Funding</b></p> <ul style="list-style-type: none"> <li>Create a sustainable funding mechanisms for conservation.</li> <li>Improve Park Infrastructure, Equipment and Facilities.</li> </ul> <p><b>Data</b></p> <ul style="list-style-type: none"> <li>Technical support is needed to collect regular bio-physical data.</li> </ul> <p><b>Enhance resilience of biodiversity by managing stressors</b></p> <ul style="list-style-type: none"> <li>Enhance resilience of marine and terrestrial flora and fauna through the improved management of pollution and waste.</li> <li>Establish and maintain buffer zones and migration pathways.</li> </ul> <p><b>Impact assessments</b></p> <ul style="list-style-type: none"> <li>Conduct periodic impact assessments.</li> </ul>
<b>Soils</b>	<p><b>Soil Condition</b></p> <ul style="list-style-type: none"> <li>Topsoil on the islands is not well developed. Soils are thin and scarce, rarely exceeding a couple of inches in depth and containing little if any organic material or nutrients.</li> </ul> <p><b>Loss of top soil to development</b></p> <ul style="list-style-type: none"> <li>Developers are more commonly clearing building sites of precious top-soil than before, leaving visual scars and increasing the likelihood of erosion, with knock-on impacts on enclosed lagoons and water bodies.</li> </ul>	<p><b>Soil conservation guidelines</b></p> <ul style="list-style-type: none"> <li>Guidelines are needed to minimise soil erosion/runoff from development sites and to mitigate the habitat loss and degradation.</li> </ul>
<b>Beaches</b>	<p><b>Nesting areas</b></p> <ul style="list-style-type: none"> <li>Ecologically, beaches are important nesting areas for a number of species including endangered sea turtle populations, sea bird populations and a number of crustacean species.</li> </ul> <p><b>Beach erosion,</b></p> <ul style="list-style-type: none"> <li>Grand Turk beach site monitoring reveals that some sites show subtle to significant signs of erosion (Governors Beach, Osprey, Columbus Landing, and Little Bluff North) affected by seasonal shifts in sand and storm events.</li> <li>Impermeable structures erected too close to the shoreline disrupt the natural cycle of accretion and erosion of sandy beaches, and accelerate the rate of erosion of sand.</li> </ul> <p><b>Loss of beaches and dunes to mining and development</b></p> <ul style="list-style-type: none"> <li>Natural sand dunes have been lost to development in East Grace Bay, Pelican Point and Emerald Bay, making them more susceptible to sea level rise and storm surge.</li> <li>Beaches are at great risk to impacts from the rapid development of tourism infrastructure and uncontrolled sand mining for construction has damaged sand dunes such as those of Booby Rock Point in Grand Turk</li> <li>Illegal sand mining takes place and mining activity is loosely regulated.</li> </ul>	<p><b>Mandatory EIAs, permits and monitoring</b></p> <ul style="list-style-type: none"> <li>EIAs should be mandatory for all coastal development projects. <i>[Currently EIA are that the Director of Planning's Discretion]</i></li> <li>Monitoring should occur during the construction to ensure minimization of construction related impacts.</li> <li>All coastal dredge and fill projects should have special permit application forms/procedures</li> </ul> <p><b>Sensitive erosion control</b></p> <ul style="list-style-type: none"> <li>Breakwaters should be designed to incorporate structures that aid restoration of juvenile habitat. - Artificial reef structures are a good option, because they are more wave stable and aesthetically pleasing than mounds of boulders. They also create snorkelling areas.</li> </ul>

	Current situation	Suggestions for change
	<p><b>Effects of sea level rise/coastal squeeze</b></p> <ul style="list-style-type: none"> <li>At a 0.5 m Sea Level Rise scenario, more than half of the beach area will be lost in Grand Turk West Shore (53%) and Historic Cockburn Town (65%).</li> </ul>	
<p><b>Healthy Sea</b></p>	<p><b>Value of the sea to the TCI</b></p> <ul style="list-style-type: none"> <li>The majority of the tourism economy is driven by the fact that the TCI is surrounded by pristine waters in which visitors can fish, dive, snorkel, swim, boat, and lounge by.</li> <li>The particular nature of coastal areas and their connection with the sea underlie their economic and social value and their specific need for management and protection. Reefs are valuable and like anything of value, that value can increase if the product is well maintained and protected, or it can decrease, if it is neglected or exploited.</li> </ul> <p><b>Threats to healthy sea</b></p> <ul style="list-style-type: none"> <li>Critical threats for healthy seas are population growth and immigration, coastal and land-based development, illegal fishing, pollution, marine traffic, capacity to manage reefs and other marine resources.</li> <li>Significant cause of reef damage is due to sedimentation from silt as a consequence of erosion and coastal development.</li> <li>Clearing mangrove stands and the construction of groins as sea defences practices results in erosion and contributes to siltation of the reefs.</li> <li>The construction of tourist facilities and industrial units can alter water flows around the reef changing a major ecological factor and become a point source of pollution, sedimentation and littering.</li> </ul> <p><b>Coastal and Marine Protected Areas (MPA)</b></p> <ul style="list-style-type: none"> <li>Issues and threats for the National Parks include the use of watercraft outside of designated zones; water skiing, anchoring in non-designated areas; speed limit not observed; inappropriate size, use and location of some zones; illegal fishing; impact of snorkelers on near shore shallow reefs; obstruction of beach access; inadequate monitoring; inadequate capacity to manage; lack of awareness of park boundaries and zones; beach erosion; inadequate information for planning and management; poor inter-institutional collaboration; pollution.</li> </ul> <p><b>Coral reefs</b></p> <ul style="list-style-type: none"> <li>Coral reefs make a substantial contribution to the economy, with 7.8% of GDP being attributable to the presence of reefs and the total economic value of coral reefs amounts to \$47.3 million a year.</li> <li>Coral reefs are a significant feature of TCI's marine environment and provide a range of ecosystem services including the white sand for its famous beaches; habitat for a wide diversity of marine species and critically important coastal defences for the low-lying islands and cays.</li> <li>Grand Turk has a well-earned reputation as one of the finest diving destinations in the world with an outstanding protected coral reef that drops to 7,000 feet along the west side of the</li> </ul>	<p><b>MPA</b></p> <ul style="list-style-type: none"> <li>Create effective marine protected areas (MPAs).</li> <li>Coral reef protection</li> <li>Focus on what is needed to be done to properly manage and protect coral reefs.</li> <li>Foster resilience in coral reefs which includes integrated coastal zone management.</li> <li>Enforce laws against coral reef destruction, control pollutants, promote sources of construction material other than coral, and avoid damage from boats.</li> <li>Transplant coral reefs from resilient ecological zones.</li> <li>TCI Government urgently needs to enforce measures which seek to improve the management of the country's traditional turtle fishery . <i>[New regulation went into effect on 1 July 2014]</i></li> <li>More marker buoys to indicate location of coral reefs, more restrictions for reef use and fishing, more anchored buoys for mooring, less pollution.</li> </ul> <p><b>Mangrove transplantation</b></p> <ul style="list-style-type: none"> <li>All mangrove saplings should be successfully removed and replanted elsewhere</li> </ul>

	Current situation	Suggestions for change
	<p>island. Reefs of TCI are extensive and diverse with an estimated area of almost 1,200 km<sup>2</sup> of bank and fringing reefs comprised of about 30 different coral species.</p> <ul style="list-style-type: none"> <li>Without coral reefs there would be no beautiful white sand beaches. No near-shore fishery, no conch or lobster, no protection from storms and hurricanes. There would be no tourists who go diving and snorkelling, not even beachcombers.</li> <li>Reefs also play a big role in preventing beach and land erosion. Each year, the coral reefs contribute millions of dollars in terms of tourism, fisheries, and the provision of coastal defence against events like hurricanes.</li> <li>For many people who live and work in the TCI reefs represent a substantial source of revenue/income or a vital food supply.</li> </ul> <p><b>Nursery Grounds</b></p> <ul style="list-style-type: none"> <li>Coral reefs, mangrove wetlands and seagrass beds are prime nursery areas for a wide variety of marine and terrestrial wildlife and are being threatened by a combination of pollution, sedimentation, dredging and coastal land reclamation. The cumulative effects of these activities can effectively sterilize the productive capacity of near-shore coastal areas.</li> <li>Challenges to include: removal of mangroves and invasion of exotic nuisance species</li> </ul>	
<b>Climate</b>	<p><b>Climate impact through loss of habitats</b></p> <ul style="list-style-type: none"> <li>The loss of some ecosystems, especially forest areas and wetlands, contributes a significant amount of carbon dioxide and other greenhouse gases to the atmosphere.</li> <li>TCI belong to the region's high emitters, producing more than the global annual average. This has resulted in part by the fact that current tourism related energy use and associated emissions in Turks and Caicos are estimated to be the equivalent of almost 150% of estimated national emissions. Cruise ships (39%), aviation (30%), and accommodation (15%), were identified as the major direct consumers of energy and the main emitters.</li> </ul> <p><b>Cost of climate change and risk</b></p> <ul style="list-style-type: none"> <li>Recent studies have estimated annual economic damage from climate change in Caribbean Community member countries will be around US\$11 billion by 2080, or 11 percent of the regions' gross domestic product. The Caribbean region is among the regions said by scientists to be most at risk from the effects of global warming</li> </ul> <p><b>Impacts of extreme events: loss of beaches and reefs, impact on tourism, drought, beach erosion, property risk, lack of food</b></p> <ul style="list-style-type: none"> <li>Climate change is projected to increase the incidents of extreme events (floods, droughts) and the intensity of hurricanes (a greater likelihood of category 4 and 5 hurricanes). More intense tropical storms and hurricanes are likely to result in loss of beaches, damage or loss of reefs and damage to tourism facilities.</li> <li>Decreasing total rainfall accompanied by a change in rainfall patterns such that more heavy rain events are projected. These declines in precipitation will lead to an increase in the risk of periods of drought, which are likely to occur more frequently and be more severe.</li> <li>Light to moderate storm surge events will cause major beach erosion and affect hotel</li> </ul>	<p><b>Need adaptation strategy and action</b></p> <ul style="list-style-type: none"> <li>A National Climate Change Adaptation Strategy and Action Plan for the Turks and Caicos Islands is needed <i>[DDME is incorporating this into their overall disaster management strategy and action plan]</i></li> </ul> <p><b>Data</b></p> <ul style="list-style-type: none"> <li>Address the lack of long-term climate data for the Turks and Caicos Islands</li> </ul> <p><b>Increase resilience through protecting ecosystems</b></p> <ul style="list-style-type: none"> <li>Government can mitigate against loss of habitats by protecting and enhancing these ecosystems.</li> </ul> <p><b>Enhance public understanding</b></p> <ul style="list-style-type: none"> <li>Implement an interactive and innovative community education and capacity building initiative designed to reach all levels of society in TCI .</li> <li>The Department of Disaster Management and Emergencies needs to maintain regular communication with the public to keep building a 'culture of resilience'.</li> </ul> <p><b>Sustainable tourism</b></p> <ul style="list-style-type: none"> <li>There is growing consensus that climate policy has a key role to play in the transformation of tourism towards sustainability.</li> </ul> <p><b>Manage climate related disease impacts</b></p> <ul style="list-style-type: none"> <li>Infectious disease surveillance and disease outbreak</li> </ul>

	Current situation	Suggestions for change
	<p>properties and facilities that are situated on the beach. However, more extreme storm surge events can cause coastal inundation and more extensive damage to coastal infrastructure.</p> <ul style="list-style-type: none"> <li>The unavailability of food due to environmental disasters in source markets or that affect transportation could have consequences for the health of the population</li> </ul> <p><b>Sea level rise</b></p> <ul style="list-style-type: none"> <li>Sea level rise will affect the way hoteliers and other persons construct buildings near to coastal areas and setback regulations may have to be introduced and/or strengthened.</li> </ul> <p><b>Loss of habitats and coral bleaching</b></p> <ul style="list-style-type: none"> <li>Rising sea surface temperatures will also result in more frequent and severe coral bleaching events and contraction of vegetated areas and the displacement and/or loss of some plant/animal species and habitats.</li> <li>Rising temperatures and changing rainfall patterns to result in coral bleaching, loss of some plant/animal species and habitats. Major changes in flora and fauna composition including the threat of more invasive species, reduction in species genetic diversity, loss of biodiversity could represent a loss of competitive advantage in tourism industry.</li> <li>Coral bleaching events and subsequent reef mortality are expected to become more frequent as sea surface temperatures increase. Rising sea surface temperatures and sea levels and increasing frequency of storms will seriously endanger coral reefs, especially those already under stress from poor water quality, destructive fishing and tourism impacts.</li> </ul>	<p>management has been identified as a priority.</p> <ul style="list-style-type: none"> <li>Educate the public about best practices to deal with vector and water borne diseases emphasizing that prevention is better than cure. Also need advocacy and awareness about diseases</li> </ul>
<b>Energy and waste</b>		
<b>Energy Security</b>	<p><b>Tourism energy consumption</b></p> <ul style="list-style-type: none"> <li>Tourism is an increasingly significant energy consumer and emitter of greenhouse gases (GHG) both globally and in the Caribbean.</li> </ul> <p><b>Diesel, costs and lack of energy security</b></p> <ul style="list-style-type: none"> <li>The economy has been impacted by the global escalation in food and fuel prices in 2008.</li> <li>The TCI relies on diesel fuel for 100% of its energy demands. In the wake of recent hikes in the price of oil, the costs of electricity in the islands have skyrocketed.</li> <li>The stability of the energy market in TCI is threatened by rising fuel prices. This is especially concerning given the high costs of transportation (no deep water ports), small market and inability to use cheaper fuels.</li> </ul> <p><b>Fuel increases affect tourism</b></p> <ul style="list-style-type: none"> <li>Fuel prices are relevant for the tourism system because mobility is a precondition for tourism and rising oil prices will usually be passed on to the customer. This was evident in 2008 when many airlines added a fuel surcharge to plane tickets in order to compensate for the spike in oil prices. Increased travel costs can therefore lead to a shift from long haul to short haul destinations.</li> </ul> <p><b>Climate change impact on power generation</b></p> <ul style="list-style-type: none"> <li>Temperature increases have been shown to reduce the efficiency of energy generation at thermal power plants and reduced precipitation may affect water availability for non-</li> </ul>	<p><b>Energy Policy</b></p> <ul style="list-style-type: none"> <li>Need to develop an Energy Policy as an important adaptation strategy.</li> </ul> <p><b>Renewable energy</b></p> <ul style="list-style-type: none"> <li>The tropical islands have high solar energy reserves with at least 4.5 daily hours of peak sun year round and sufficient wind resources to utilize wind power.</li> <li>Need for electricity conservation and efficiency and solar and wind penetration in the TCI energy market.</li> </ul> <p><b>Sustainable energy and tourism</b></p> <ul style="list-style-type: none"> <li>Mitigation measures can provide useful benefits such as energy cost savings and recognition as a low-carbon destination.</li> <li>Sustainable energy initiatives are needed for tourism, it is vital for governments to engage all tourism actors in adopting a sustainable tourism policy, because tourism is largely a private sector activity.</li> </ul> <p><b>Assess climate effects on energy production</b></p>

	Current situation	Suggestions for change
<b>Waste, sewage and litter</b>	<p>contact cooling of power generators. Power generating stations and other major infrastructure located on the coastline are also highly vulnerable to damage from flooding and inundation resulting from sea level rise and storm surges.</p> <p><b>Sewage</b></p> <ul style="list-style-type: none"> <li>Increased development results in increased discharge and sewage discharge can severely damage coral and fish communities.</li> <li>Raw sewage is also disposed from vessels berthing.</li> </ul> <p><b>Litter and dumping</b></p> <ul style="list-style-type: none"> <li>Littering, illegal dumping and the abuse of communal bin facilities represent additional problems.</li> <li>Serious littering problem</li> </ul> <p><b>Poorly managed and polluting landfill sites</b></p> <ul style="list-style-type: none"> <li>Not a single landfill site is managed under design and operating plans, and none have proper site controls and security.</li> </ul> <p><b>Lack of waste minimisation</b></p> <ul style="list-style-type: none"> <li>There are no waste minimisation, reuse or recycling programs in TCI. [No longer accurate: on Provo a private company is recycling but only people paying for roadside pickup can access this]</li> </ul> <p><b>Waste and pollution impacts</b></p> <ul style="list-style-type: none"> <li>Important to manage waste to maintain standards of health and safety for fishermen, bathers, consumers of sea food and protect the marine park.</li> </ul>	<ul style="list-style-type: none"> <li>The impacts of climate change affecting energy systems in TCI should therefore be assessed for existing traditional sources as well as the planned renewable energy sources.</li> </ul> <p><b>Waste management</b></p> <ul style="list-style-type: none"> <li>Waste management is needed to incorporate waste avoidance, improved collection and storage, a recycle and reuse program, design and operation of sanitary landfills, enforcement of anti-littering and other waste related regulations, implementation of 'fee for service' system and a country-wide clean-up program.</li> <li>Increasing levels of eutrophication should be arrested.</li> <li>Dumpsites need monitoring and maintaining for centuries after they close.</li> <li>Seek methods of waste disposal that do not impair the environment, use up valuable resources or place limitation on future resources</li> <li>TCI is in need of an integrated solid waste management system.</li> </ul> <p><b>Waste education</b></p> <ul style="list-style-type: none"> <li>Waste education programs are needed for the whole population.</li> </ul> <p><b>Stringent requirements for discharge that could impact MPA</b></p> <ul style="list-style-type: none"> <li>More stringent requirements covering the permitted discharge and levels in the Marine park environment such as oil, hydrocarbons, heavy metals and organic effluent.</li> </ul>
<b>Human use of the environment</b>		
<b>Fisheries</b>	<p><b>Fishing</b></p> <ul style="list-style-type: none"> <li>Fishing and free diving is the most common identified community activity conducted in relation to the sea.</li> <li>Little exploitation of deep water and pelagic stocks.</li> <li>The significant source of food [for the TCI] is the sea. Conch, grouper, snapper and other fish are a part of the diet. The world's first shrimp [inaccurate - should say conch] farm is operational in Providenciales.</li> </ul> <p><b>Stock Declines</b></p> <ul style="list-style-type: none"> <li>Conch and lobster are primary fisheries products but Queen conch stocks and Caribbean spiny lobster stocks are in decline</li> </ul> <p><b>Causes of decline: overfishing, climate change, loss of mangroves, pollution, alien species, hurricanes</b></p> <ul style="list-style-type: none"> <li>Fish population declines (e.g. Nassau grouper) have occurred predominantly through</li> </ul>	<p><b>Enforcement</b></p> <ul style="list-style-type: none"> <li>Enforce current laws to protect fisheries</li> <li>Patrol the area for illegal fishing practices</li> <li>More enforcement and increased presence of fisheries officers and patrols is needed, particularly during the lobster season.</li> </ul> <p><b>Assessment and monitoring</b></p> <ul style="list-style-type: none"> <li>Fisheries assessments and monitoring is needed.</li> </ul> <p><b>Encourage sustainable fishing methods, enforce ban on unsustainable methods eg bleach</b></p> <ul style="list-style-type: none"> <li>Encourage sustainable fishing practices through education (fishers and local residents).</li> <li>The use of chemicals like bleach to extract lobster should be</li> </ul>

	Current situation	Suggestions for change
	<p>unsustainable exploitation and fishing, but also from loss and degradation of essential habitats and poleward migration of fish stocks.</p> <ul style="list-style-type: none"> <li>Overfishing and over exploitation of reef fish and edible or semi-edible reef animals are collected to near extinction including molluscs, conch, echinoids and holothurians, crabs, crayfish and other crustacean.</li> <li>Fish catches have decreased around TCI, large coastal developments are impacting the sea (e.g. sewage), the arrival of lionfish and the devastating impacts of a series of hurricanes, Katrina (2005), Hannah and Ike (2008) led to bad catches and broken up reefs. [<i>Katrina did not impact here</i>]</li> <li>Rising sea surface temperatures and sea level rise will result in changes in fish production as well as loss of mangroves, which serve as breeding grounds for some fish and other marine life.</li> </ul> <p><b>Poaching</b></p> <ul style="list-style-type: none"> <li>In the 1990s, people noted increased poaching in the fishing industry by foreigners using different methods than local fishermen, such as tanks for diving.</li> </ul>	<p>stopped</p> <p><b>Aquaculture</b></p> <ul style="list-style-type: none"> <li>Diversify the fisheries sector to include sustainable aquaculture/encourage fish farming</li> </ul> <p><b>No take zones and temporary closures</b></p> <ul style="list-style-type: none"> <li>Create "no-take" MPA zones. [<i>All TCI MPAs are no-take. This is also a matter of enforcement</i>]</li> <li>Close banks to export for between 2 and 5 years to allow stocks to recover.</li> </ul> <p><b>Co-operation between government, fishers and tourism</b></p> <ul style="list-style-type: none"> <li>Better cooperation between Gov't, fishermen and tourism operators.</li> </ul>
<b>Agri-culture &amp; Food Security</b>	<p><b>Role of Agriculture in TCI</b></p> <ul style="list-style-type: none"> <li>TCI lacks any significant agricultural industries, therefore a huge amount of food is shipped to TCI.</li> <li>National account statistics indicate that the sector's contribution to GDP is about 0.65%</li> <li>There is limited subsistence and all fruits and vegetables consumed in TCI are imported from overseas. [<i>there is limited fruit grown and consumed on a subsistence basis</i>]</li> </ul> <p><b>Lack of skilled workers</b></p> <ul style="list-style-type: none"> <li>There is a lack of skilled workers in the service of the agriculture sector.</li> </ul> <p><b>Difficult conditions: soil type; water, low nutrient levels, slash and burn cultivation; salt laden winds</b></p> <ul style="list-style-type: none"> <li>Agriculture is challenged by soil type and structure, soil fertility and access to water.</li> <li>The scarcity of topsoil and low level nutrient qualities are exacerbated by slash and burn cultivation.</li> <li>Harsh conditions of low rainfall and salty breezes further complicate the possibility of local agriculture for food consumption.</li> </ul> <p><b>Impact of climate change on production</b></p> <ul style="list-style-type: none"> <li>Rising temperatures and changing rainfall patterns may foster increasing fires, and more frequent and severe droughts leading to loss of crops and livestock.</li> <li>Rising temperatures will also result in increased incidences of pests.</li> <li>Rising sea levels could lead to loss of land for agriculture due to salinization and inundation.</li> <li>Rising insurance costs are likely alongside increased costs of pest and disease control.</li> </ul>	<p><b>Awareness raising and support for farmers</b></p> <ul style="list-style-type: none"> <li>Awareness-raising among farmers and providing them with genetic resources for crop propagation and breeding programs.</li> </ul> <p><b>Data sharing</b></p> <ul style="list-style-type: none"> <li>Establishing databases with relevant data and information to facilitate information sharing, research and analysis.</li> </ul> <p><b>Innovations in farming practice</b></p> <ul style="list-style-type: none"> <li>Introducing more climate-resilient crop varieties; crop diversification; resource management tools and infrastructure.</li> <li>Promote the use of locally-grown crops and develop a warning system for invasive species that threaten agricultural production.</li> <li>Promote traditional land management practices that conserve soil fertility and biodiversity and protect ecosystem functions and processes.</li> <li>Invest in new technology such as hydroponics and biotechnology.</li> </ul>
<b>Tourism</b>	<p><b>Value of tourism</b></p> <ul style="list-style-type: none"> <li>Tourism accounts for most of the country's GDP and the Turks &amp; Caicos Islands has a strong dependence on the tourism industry and the many natural assets that enable tourism to be successful.</li> </ul> <p><b>Unique offer – encounters with beauty and nature</b></p>	<p><b>Establish Sustainable Tourism</b></p> <ul style="list-style-type: none"> <li>Develop nationally consistent best-practice guides for sustainable tourism.</li> <li>Encourage the tourism industry (including accommodation, transport, and attractions) to reduce energy use and</li> </ul>

	Current situation	Suggestions for change
	<ul style="list-style-type: none"> <li>The Turks and Caicos Islands boast several exclusive attractions for visitors such as sighting Humpback whales and manta rays, sport-fishing for tunas and marlins and diving along impressive coral reefs.</li> <li>Attracts visitors and investors from all over the world with the promise of offering a peaceful reprieve from the rest of the world and rediscovery of a connection with nature.</li> <li>Encounters with exotic birds are frequent among the salt ponds and marshes that provide breeding and feeding grounds for terns, blue herons and pink flamingos.</li> </ul> <p><b>Impact of tourism development on the environment</b></p> <ul style="list-style-type: none"> <li>Development now threatens the very environmental values that inspired it in the first place.</li> <li>The relatively recent advent of exponential tourism development has been both an economic boon and an environmental detriment to the country. The islands now find themselves in the precarious position of balancing economic growth with environmental impact.</li> <li>Past 30 years has seen more development than in all of the previous history combined. Land is being cleared for large-scale tourism facilities and its associated infrastructure. Wetlands are being dredged to form marina basins. The tourism industry is described as crowded with too many tour-operators.</li> </ul> <p><b>Grand Turk Cruise Ship Centre</b></p> <ul style="list-style-type: none"> <li>The opening of the Cruise Ship Centre on Grand Turk changed the demographic of the tourism industry. The arrival of cruise ships changed the island considerably, with the building of the port and cruise ship centre, which created new jobs and a new economy.</li> </ul>	<p>conserve water resources, and not build tourism facilities in vulnerable areas.</p> <ul style="list-style-type: none"> <li>Adopt greener technologies at tourism facilities.</li> <li>Obtain Green Globe and Green Hotel certification.</li> </ul> <p><b>Collect broader metrics</b></p> <ul style="list-style-type: none"> <li>Tourism data collection should include more than standard economic success measures.</li> </ul> <p><b>Environmental education for tourists</b></p> <ul style="list-style-type: none"> <li>Integrate environmental educational measures into the tourist experience.</li> </ul> <p><b>Stronger regulation</b></p> <ul style="list-style-type: none"> <li>Technological innovation and behavioural change will need strong regulatory environments.</li> </ul>
<p><b>Infra-structure and develop-ment</b></p>	<p><b>Causes of unconstrained development</b></p> <ul style="list-style-type: none"> <li>Continued development, lack of management, a bad government and not enough resources or manpower to enforce legislation characterized the 1990s.</li> </ul> <p><b>Risks of unconstrained development (for specific impacts to parts of the environment/life support systems see section above)</b></p> <ul style="list-style-type: none"> <li>Perspective is that the government is very development/economic growth driven.</li> <li>Continuation of the status quo in terms of developmental policies will continue to erode pristine land areas. Land in protected areas system may be the only areas left unscathed by development trends and if huge efforts are taken now to ensure their protection.</li> <li>Current development practice cannot be maintained in such a small island nation as there is a finite land resource available. It also threatens the very basis upon which the tourism market is founded: its natural beauty.</li> <li>There are considerable negative impacts on the environment as a result of tourism development, for example a coral reef being dredged to create a cruise ship port.</li> </ul> <p><b>Lack of a strategic plan for development</b></p> <ul style="list-style-type: none"> <li>The event perceived to have had the most significant impact on TCI was the lack of strategic planning for tourism development combined with the influx of inexperienced developers.</li> </ul> <p><b>Lack of skills and capacity around planning policy and enforcement</b></p>	<p><b>Strategic development plan</b></p> <ul style="list-style-type: none"> <li>Need a national land use /spatial planning (National Physical Development Plan)</li> <li>Need strategic land/sea use planning and spatial planning. Develop land-use plans that promote development away from the coast.</li> </ul> <p><b>EIA mandatory</b></p> <ul style="list-style-type: none"> <li>EIA process needs strengthening and to be more rigorous</li> <li>Make the completion of EIA's a mandatory condition for the approval of all commercial development activities, and EIA's should consider mitigation and adaptation to climate change</li> </ul> <p><b>Mitigate environmental impact and penalise any breach</b></p> <ul style="list-style-type: none"> <li>Mitigation and compensation requirements need to be in place</li> <li>Employ the Endangered Species Act and list all species of interest including specific conditions for removal, payment for removal, mitigation and enforcement.</li> </ul>

	Current situation	Suggestions for change
	<ul style="list-style-type: none"> <li>A lack of appropriately trained staff for planning policy enforcement.</li> </ul> <p><b>Environmental Impact Assessment inadequate</b></p> <ul style="list-style-type: none"> <li>The wording of the ordinance is vague. There are no specific guidelines with regards to which species or specimens are to be protected.</li> <li>For most developments an environmental site assessment is not required. Therefore, the features of environmental interest are usually not identified.</li> <li>When certain features are identified through an Environmental Impact Assessment process, there is frequently no follow up and/or monitoring to ensure that these features are preserved.</li> </ul> <p><b>Economic benefits not flowing to local population</b></p> <ul style="list-style-type: none"> <li>Much of the development underway does not financially benefit the local population directly, as the owners are expatriates.</li> </ul>	<p><b>New legislation against environmental damage</b></p> <ul style="list-style-type: none"> <li>Develop legislation and regulations that provide deterrents and penalties for pollution and degradation to the environment</li> </ul> <p><b>Planning for sea level rise</b></p> <ul style="list-style-type: none"> <li>Establish or improve setback regulations and initiate stronger and more appropriate building codes if needed.</li> <li>Include present and projected sea level rise in planning and development and incorporate such information in zoning ordinances and building permits.</li> <li>Employ land-use planning to regulate land-use practices in order to incorporate climate change impacts into decision-making processes</li> </ul> <p><b>Shore line management plans</b></p> <ul style="list-style-type: none"> <li>Introduce a mechanism for the development and implementation of shoreline management plans' and coastal zone management plans</li> </ul> <p><b>Environmental management bill enacted</b></p> <ul style="list-style-type: none"> <li>Environmental Management Bill needs to come into force</li> </ul> <p><b>Change building codes</b></p> <ul style="list-style-type: none"> <li>Make changes to the building code to address development in vulnerable areas. <i>[A new Building Code has been developed by the EU. A new Planning Ordinance and Development Manual now need to be implemented to match.]</i></li> </ul>
<p><b>Culture &amp; Society</b></p>	<p><b>Population information</b></p> <ul style="list-style-type: none"> <li>The population density for the entire Turks and Caicos has increased from 15 (in 1970) to 20 (in 1980) to 31 (in 1990) to 54 (in 2001) to 71 (in 2004) persons per square mile; with the population densities in 2004 more than doubling that record in the 1990 census.</li> <li>Increased immigration, especially from Haiti and the Dominican Republic.</li> </ul> <p><b>Loss of historic sites</b></p> <ul style="list-style-type: none"> <li>Most of the habitable coastline contain sites that date back to prehistory (post AD 1000). Over 60 prehistoric sites have been recorded in the TCI but these sites are being rapidly impacted by development.</li> </ul>	<p><b>General lack of environmental awareness and understanding</b></p> <ul style="list-style-type: none"> <li>Generally a lack of awareness of environmental limits and sensitivities.</li> <li>Generally a strong belief that unfettered economic growth is good for all.</li> <li>Some aware that what is being lost is of great value.</li> </ul>

# Annex 3 Interview Consent Form

## Consent form for TCI Green Infrastructure Project Semi Structured Interviews

Please read this, sign it and bring it with you to the interview.

### Taking Part

I understand that this project is to help organisations in the TCI work out priorities for greening the economy.

I agree to take part in the interview.

I agree to what I say being noted in writing.

I understand that my taking part is voluntary; I can withdraw from the study at any time and I do not have to give any reasons for why I no longer want to take part.

### Use of the information I provide for this project only

I understand that a summary of all the interviews and other engagement activities will be provided to participants at a workshop in November, to inform their deliberations.

I understand that my words may be quoted, unattributed to me, in publications, reports, web pages, and other research outputs.

I understand that my words may be attributed to a sector or type of interest but not me personally

I understand my personal details such as phone number and address will not be revealed to people outside the project team.

I agree for the data I provide to be archived by Dialogue Matters Ltd

I agree for the data I provide, but not my personal details, to be passed to the Joint Nature Conservation Committee who are contracting this research

---

Name of participant [capitals]

---

Signature

---

Date

---

Researcher [capitals]

---

Signature

---

Date

# Annex 4 Interview Questions

## Interview Questions.

Initials of interviewer  Time  Location

**Introductions** (5 mins)

**Explanation about the TCI GE Project** (5 mins)

**Consent form** (3 mins)

**A. Interview Data** (3 mins)

Name (do in advance)

Occupation

Gender (do in advance)

Age

Nationality

Length of time living on the TCI

**B. Looking after the environment and natural life support systems** (20 mins)

*Note to interviewer:*

- *The focus of this section is on the environment itself and the work done to manage it.*
- Explain what we mean by 'life support' systems. Ie all the elements of the environment we need to function well to support human and environmental wellbeing. Examples include clean water, clean air, food, materials, beauty and nature.

What natural 'life support' systems do you think are most crucial to the TCI? (5 mins)

Why did you choose these? ( 5 mins)

What is already working well to look after the natural life support systems on the TCI?  
(5 mins)

What needs to be solved or changed for natural life support systems to be healthy over the long term? *(Note for interviewer: this is a constructive way of asking about issues, challenges, gaps, risks or threats).* (5 mins)

**C. Factoring the environment and natural life support systems into strategic decisions and thinking** (15 mins)

Note to interviewer:

- The focus of this section is how well the environment is factored in to the strategic processes and procedures that have a direct or indirect effect on the environment (eg policy, laws, monitoring/reporting, research and planning))

1. What is working well to ensure the environment and natural 'life support' systems are taken into account in strategic decisions and thinking on the TCI? (5 mins)

--

What else needs to happen to embed this further? (10 mins)

--

**D. Priority topics** (5 mins)

What would be your top 3 priorities for attention ?

1.
2.
3.